

D. Emergency Response

The response to the incident depended, in the main, on the simultaneous accomplishment of several activities, among these being:

- The determination of the extent and severity of the problem at hand, and;
- The timely notification and direction of in-house team and external response agencies.

1. Communication Systems

The Authority has a wide array of communication capabilities. These have been detailed in the Clark Street Interdepartmental Task Force Report to the President, NYCTA, published on February 11, 1991. For the purpose of this report the Board narrowed its focus to the means of communication immediately available to the Console Train Dispatcher (C/T/D) and the Desk Superintendent (DS), the individuals in the Command Center who were directly involved in managing this incident. Communication equipment available consisted of the following systems:

- a. The "6" Wire: This is an inter/intra departmental intercom that is a "talk/listen" system between the C/C, the Rapid Transit Operations Divisions (Stations, Rapid Transit, Car Equipment, Electrical Systems), the Transit Police, and other offices throughout the Authority. This system enables all parties on the line to hear all transmissions at the same time. This system was operational during the Clark Street incident.
- b. Ring Down Lines to Emergency Medical Services (EMS): Ring down lines are telephone lines that are activated when a telephone receiver on an instrument is picked up. When the receiver is picked up, all parties can talk on the line. It is not necessary to dial a number although there may be a "push to talk" feature on the hand instrument being used depending on the age/type of equipment available.

Two ring down lines had been installed. One line was installed prior to 1990. It connected the Transit Police (TAPD), the Rapid Transit Operations (RTO) Command Center and the Emergency Medical Service (EMS) Tour Commander's desk at the EMS' Maspeth, Queens facility. This line was functional during the Clark Street incident.

A second ring down line, connecting the Transit Police Communications Unit with the EMS Specialty Desk had been installed in 1990. This line was not functional during the Clark Street incident. An investigation of the problem after the incident revealed that the line to the EMS had not been connected on any equipment" at the EMS end.

The Board's review of the difficulties experienced in communicating with EMS on the morning of the incident, revealed that one (1) of the ring down lines was out of service because it had never been properly terminated within the EMS facility. The second ring down line went directly to the EMS Tour Commander's desk. Were this person not at his/her duty station, the phone would have gone unanswered, which appears to have been the case, initially.

NOTE: It should be pointed out that the Authority is only responsible for the communication hook ups to the EMS facility but not within the facility itself because of the interface between the vendors who install and maintain the respective entities' telecommunications equipment. Due to the seriousness of this issue, the Authority working with the New York Telephone Company corrected this deficiency on January 11, 1991.

- c. Centrex Lines: Centrex Lines are essentially "330" numbers used by the Authority on its own switching system. During 1990 the Authority installed three (3) of these lines at the EMS' Maspeth facility (copies of all work orders are included in the Appendix). One (1) of these lines (330-4862) was to have been hooked to an automatic call distribution system (ACD) as a back up for two (2) other lines (330-4492 and 4861) which were to be used to connect the Transit Police with the EMS Call Receiving Operator Dispatcher's position. This line was out of service at the time of the Clark Street incident.

A characteristic of the Centrex lines is that the dialer will hear the telephone ring from a signal generated by the Telephone company whether or not an instrument has been installed on the receiving end. This is a situation that could cause the caller to assume that the line was working and no one is there to answer, rather than being non-functional, if the line is not used frequently. This line was restored to service by an EMS equipment vendor on January 14, 1991.

Of the three (3) Centrex lines, one (1) was out of service at the EMS end. The remaining two lines were operable, but not answered. During the course of the Board's investigation the EMS was offered an opportunity to clarify the communications difficulties noted above from its point of view; however, the EMS declined.

The Board learned that no formal procedure existed for periodic checks of the emergency telephone lines. In order to ensure the availability of the means of communications that are presently available to Command Center personnel, it is necessary that communication checks be performed periodically. The results of these checks must be made known to everyone who may have a need to use the emergency lines. Discrepancies must be documented and reported to the Telecommunications group for correction.

During this incident, the fact that two (2) lines were inoperative (one ring-down and one Centrex) did not seriously impact on the notification process since several alternative means of communication were still available. However, calls reportable made on the operative lines to EMS were not answered. The reason that EMS did not answer the calls reportedly made to them is unclear.

- d. Radios: In addition to the communication equipment described above, Command Center personnel also have radio systems available to them for communications with trains and towers. T/Os are provided with radios that fit into brackets within the operating cabs. These radios receive their power from trainline sources when they are mounted in the brackets to receive power. C/Rs are provided with hand-held, battery-powered, portable radios. Both radios utilize the antenna system installed throughout the rapid transit system.

2. Notification

Despite the efforts of two train operators and the Bowling Green Tower to contact the Command Center and report the situation at Clark Street, as recorded on the Command Center tapes, it was not until after the Command Center was contacted by the Nevins Street and Bowling Green Towers by telephone that radio communication was established between the Command Center and the trains in the incident area.

This failure in communication resulted in a five minute delay in the emergency notification process. Since the Command Center only talked with the trains after being contacted on the telephone, the Board could only determine that the Desk Superintendent (D/S) and CTD were otherwise distracted. During their testimony the D/S and CTD could not tell the Board why they did not hear these transmissions.

3. Developing the Situation

In reviewing the communications transcripts the Board was concerned with respect to the time required by Command Center personnel to clarify the situation at Clark Street with respect to locating trains in the area, and determining the location and severity of the fire/smoke condition.

For example, at the beginning of the incident the T/O of the 8:42 A.M. #3 NLT repeatedly reported frequent explosions and "lots of smoke". One Train Operator, of his own volition, discharged the 7:34 A.M. #2 238 train at Clark Street due to the severity of the situation. (None of these transmissions seemed to be a source of concern to the CTD or the Desk Superintendent). It was not until the Train Operator of the 8:42 A.M. #3 NLT reported passenger injuries at 9:37 A.M., that the Command Center appeared to begin to appreciate the magnitude of the problem being experienced by the 8:42 A.M. #3 NLT.

Most noticeable was the fact that the Command Center asked few, if any, questions with respect to the location of smoke, its density, direction of movement, and any effects it might have been having on the crew and/or the passengers on the 8:42 A.M. #3 NLT although these questions were asked of the two trains that were in the Clark Street Tube.

As a result, the Command Center did not realize the seriousness of the situation with respect to the 8:42 A.M. #3 NLT until the Train Operator reported an emergency at 9:37 A.M. The failure to develop the situation with respect to the 8:42 A.M. #3 NLT had a significant impact on the subsequent rescue effort.

One of the difficulties faced by Command Center personnel is physically locating trains on the system. The technology being used is dated (circa 1950) and does not provide train occupancy (where trains are located) for 90% of the system. Command Center personnel must rely on towers and direct radio communications to establish train locations. This can be a difficult, time consuming task, that if not quickly accomplished, can have adverse effects on rescue efforts.

It appears to the Board that an effort to modernize Command Center facilities is required if these kinds of difficulties are to be overcome.

In the interim, it might be beneficial to prepare checklists for use by Command Center personnel, to ensure that they acquire the kinds of information they need to be responsive to the situation.

4. Distribution of Work

When the Desk Superintendent took over the responsibility from the C/D/T for managing the emergency, he assigned the C/T/D the duty of recording all activities that occurred during the course of the emergency. The Board reviewed the C/D/T's log and found that the log was not maintained in accordance with Command Center Directive 26-90 (Appendix D) dated January 24, 1990 which requires that "all communications received by the C/T/D should be recorded except where recorded on other prescribed forms." The C/T/D's failure to properly log all calls received may have contributed to his apparent inability to properly locate the 8:42 A.M. #3 NLT throughout the course of the incident. Between 9:13 A.M. and 9:22 A.M., the C/T/D repeatedly placed the 8:42 A.M. #3 NLT north of the Clark Street Station which would have placed the train in the Clark Street Tube, north of the fire.

From 9:11 A.M., when the T/O of the 8:42 A.M. #3 NLT first called the Command Center until 9:23 A.M., the C/T/D experienced problems properly locating the train. A first effort to locate the train started at 9:11 A.M.:

8:42 A.M. #3 NLT

"...I'm on the ah north, the south end of the station."

"...I'm up wind from the situation holding in the tube north of Clark Street, north of Borough Hall."

9:14 C/T/D

"And you're north of Clark Street, right."

8:42 A.M. #3 NLT

"I'm at north Borough Hall, I'm south of Clark Street. The situation is right at the tip of the station."

C/T/D

"Do you have any cars in Borough Hall?"

8:42 A.M. #3 NLT

"No that's - Command Center this thing is exploding, I want to request to move my passengers back to my south of the situation."

C/T/D

"Yeah, OK, listen, take your radio there with you sir."

8:42 A.M. #3 NLT

"Okay."

C/T/D

"Tell me do you have any cars near Clark Street in the station?"

8:42 A.M. #3 NLT

"C/C, I have a, my car is (inaudible) the situation and it's beginning to explode. I'm going to move my passengers to the south end of my train. I'm in the north end. I'm south of Clark Street ... I'm three cars south of the situation."

C/T/D

"Ok you're three cars south of the situation. Move your passengers back to the rear of the train."

At 9:21, a second effort to locate the train was made by the Desk Superintendent and the Console Train Dispatcher:

9:21 Desk Supt.

"42 New Lots what is your exact location?"

Desk Supt.

"42 New Lots are you just north of Clark Street?"

9:22 C/T/D

"8:42 out of New Lots come in for Command."

8:42 A.M. #3 NLT

"Command come in for the 842 New Lots."

C/T/D

"Come in 842 New Lots where are you now?"

8:42 A.M. #3 NLT

"We're just north of Clark Street."

C/T/D

"North of Clark Street on the express track, there, right do you have any trains in front of you there?"

C/T/D

"842 out of New Lots there, you on the south end of your train at Clark Street, north of Clark right?"

8:42 A.M. #3 NLT

"Affirmative."

9:23 C/T/D

"Are you in the tube, you're between Clark Street and Borough Hall, that correct?"

8:42 A.M. #3 NLT

"I'm between Borough Hall and Clark Street."

Desk Supt.

"Alright, very good that is south of Clark, very good."

It was not until the Desk Superintendent took over the management of the emergency that the trains in the incident area were properly located. The location of all trains in an incident area is critical to the emergency response effort with respect to notification and direction of emergency response agencies, preparation of trains for wrong rail moves, planning for fan operations and power removal operations.

In this incident, most of the work load appeared to have been handled by one person which resulted in insufficient information being provided to other emergency response agencies.

5. Fixation on Trains in Tubes

During this investigation it became readily apparent that the Command Center devoted the bulk of its attention to the two Brooklyn-bound trains in the Clark Street Tube.

A review of the Command Center training programs, Command Center directives, and the Authority's Operating Rules reveals that considerable emphasis is placed on resolving emergencies involving fire/smoke conditions in the underriver tubes or trains that have been disabled or, otherwise unable to move. The fact that the Furman Street Fan plants were out of service weighed heavily on the amount of time devoted to moving the two trains out of the underriver tubes. The reason for the emphasis on the underriver tubes is that there are no emergency exits available for passenger evacuation.

The distraction caused by the train in the tubes adversely affected the amount of attention that otherwise would have been afforded the 8:42 A.M. #3 NLT.

Even though the handling of trains in the underriver tubes is extremely important, it is also important to gain an appreciation of the total situation to ensure that emergency response efforts are properly directed.

6. Communications Discipline

From the outset of this, emergency communications discipline was neither established nor maintained. Between 9:10 A.M. and 9:13 A.M. the C/T/D called, "attention, attention all train conductors, please" and, " Utica Tower could you hold off...at this moment, please?", when a 12-1, requesting radio silence should have been issued. Similarly, a train operator and a Desk Superintendent called for 12-1s at 9:11 A.M. (8:42 A.M. #3 NLT) and 9:17 A.M., respectively. None of these efforts had any long term effect and the ensuing mix of calls to and from the Command Center resulted in missed communications and calls to repeat transmissions which severely hampered the C/C's ability to locate trains and move them from the affected area.

After the DS assumed all communications responsibilities, the "6" Wire was not being used effectively to provide situation updates to TA Divisions on the Clark Street situation, particularly between 9:13 A.M. and 9:25 A.M., when little or no update information was provided to in-house forces except in response to scattered requests for information from the Transit Police. The Board found gaps in responses by the Command Center to the queries from various responding departments of the Authority.

7. Train Operators/Conductors Responsibilities

As previously discussed, the C/R is responsible for the safety of the passengers and the train. The Train Operator is responsible for train movement and its safe operation. During the course of its review of the circumstances surrounding the incident, it was apparent that the C/R's contribution to the safety of the passengers was minimal. One of the primary crew activities during train emergencies is panic control.

In reviewing statements of passengers who were on the 8:42 A.M. #3 NLT, the Board found that the most frequent response to the question of seeing uniformed persons or the Train Operator or C/R on the train was "NO". To have effective panic control, it is necessary that the crew (at least the C/R) to move among the passengers and provide them with most recent information or what actions are being taken to resolve the problem.

The lack of crew coordination was evident when the passengers were being moved from the front of the train. As passengers from the first cars moved to the south, they began to bunch up and eventually could move no further. Had the Train Operator informed the C/R of the move, the C/R, in turn, could have moved passengers from his position to the south end of the train. This would have helped the move and reduced the potential for panic on the train.

I. SUMMARY

A. Significant Issues

Based upon the review of available information and witness testimony, the following scenerio for this incident was as follows:

The exposed metal tunnel liner, combined with unusual dumping of wet snow mixed with steel dust, provided a leakage current path to initiate the arcing, overheating and burning of the cable insulation. This situation could have been prevented if tube shell protection had been in place. This protection had been planned for several years but was delayed, along with the modernization of the Pierrepont-Furman Street substation, due to community opposition.

The clogged track drainage system in the Clark Street Station hindered the free flow of contaminated water which helped to sustain the arcing and subsequent explosions. The arcing caused the insulation on the transposition cables and conduit to burn which generated a large volume of smoke.

Initial attempts by the T/O's to report the arcing and smoke condition to the Command Center were not answered. It required telephone calls from the Bowling Green and Nevins Street Towers to establish radio communications between the Command Center and the trains in the vicinity of the incident.

The T/O of 8:42 A.M. #3 NLT failed to communicate the spread of smoke toward his train and to adequately stress the impact of the smoke condition on his train. By the same token, the Command Center failed to question the T/O in detail to acquire sufficient information to adequately assess the situation. Not knowing the seriousness of the situation, the Command Center concentrated its efforts on the location and removal of the southbound trains from the Clark Street tube. These trains were not in any imminent danger, were at least 800 feet from the fire location, and were lightly loaded. The Command Center did not make maximum use of all available resources (e.g. tower model boards) to accurately locate trains, which extended the time required to remove trains from the smoke filled tunnels. In addition, the CTD was unable to properly locate the 8:42 A.M. #3 NLT with respect to its location in the tunnel and with respect to the fire.

The cars of the 8:42 A.M. #3 NLT began to fill with smoke and when the passengers were moved from the front of the train, they were exposed to larger volumes of smoke as the car end doors were opened to move them towards the rear of the train.

The P.A. and HVAC systems on the cars of the trains in the vicinity of the fire location shared common trainline circuitry. The smoke surrounding the train required the HVAC system to be turned off, thereby rendering the P.A. system inoperable.

Information concerning the wrong railing of the 8:42 A.M. #3 NLT back to Borough Hall, with several injured passengers, was not promptly communicated to the NYPD, FDNY, and EMS by the C/C. As a result, the initial response to Borough Hall was delayed. As mentioned earlier, congestion and snow may have also affected the ability of rescue agencies to respond.

The calls to obtain additional help utilizing existing direct lines of communication were not answered by EMS.

Items not having significant impact on the scenario were:

At the time of the incident, the Furman Street Fan Plant was under construction. The Old Slip Fans were operated in the exhaust mode. However, these fans pulled smoke into the tube toward the trains that were standing there. The Furman Street fans, had they been available, would not have been of assistance in this incident, due to the relative position of the trains, the fans, and the fire/smoke condition.

During this investigation several questions arose with respect to what the Authority should expect of T/Os and C/Rs who become involved in serious, life threatening situations on their trains. Among the issues raised was whether or not it would be:

- better to have two T/Os on board a train rather than a T/O and a C/R. This situation would facilitate the initiation of wrong rail moves or "adding to" reach trains in emergencies. On crowded trains the benefit would be obvious since the second T/O would have less distance to travel to move from his/her mid-train position to the rear of the train.
- better to have only one crew member, the C/R, involved in panic control situations while the T/O devoted his/her attention to overcoming train problems or coordinating the rescue effort. In the Clark Street incident the T/O tried to do both. The C/R appeared to have been less engaged in this respect. It took the T/O a long time to get to the rear of his train because he was trying to exercise panic control and attend to stricken passengers. In extreme emergencies the Board feels that the duties and responsibilities of the T/O and C/R should be clearly defined and that instructions from the Command Center to train crews should reinforce them.

If a decision were to be made to delegate to the C/R panic control responsibilities, it would be necessary to review existing training programs to determine if the material is of sufficient strength to ensure that employees receiving the training are fully capable of handling this activity.

Since panic control techniques were either not used or were ineffective, Rapid Transit should review the program for its efficiency and to determine if retraining programs are offered with sufficient frequency for trained personnel to maintain their proficiency.

- better to provide T/O with portable radios to enhance their ability to move about the train. The T/O mistakenly left his radio behind (in the third car) during his move to the rear of his train. The portable radio is easy to carry and use. It is less likely that it would have been left behind. A limiting feature of the portable radio is its signal strength (6 Watts). To overcome the signal strength issue an alternate distribution of radios would be to provide the C/R with the bracket-mounted 20 Watts radio and the T/O with the portable unit.

B. Conclusions

1. The installation of the transposition cables was improper, because concrete was removed and was not replaced, leaving an exposed area of the metal tunnel liner.
2. Primarily due to community opposition, delays in modernizing the Pierrepont - Furman substation made tube shell protection unavailable for the Clark Street Tubes.
3. Tube Shell protection, had it been installed in the Clark Street Tubes, could have reduced the severity of this incident.
4. The change in air pressure at blast areas caused snow on the tops of subway cars to become dislodged and fall to the roadbed, creating a wet condition that contributed to the development of stray currents.
5. Due to the clogged track drainage, the wet snow mixed with the steel dust, providing a leakage current path to the metal tunnel liner, causing arcing and subsequent explosions and fire/smoke conditions.
6. Existing procedures for inspection and/or maintenance of track drainage are insufficient.
7. The installation of the wiring leading from the 3rd rail lighting tap to the electrical distribution room was temporary in nature.
8. The "temporary" lighting tap was left in place for a period far exceeding a normal time frame for a temporary installation.
9. The Board could not reach a firm conclusion with respect to the role of the 3rd rail tap in the fire, because the evidence had been removed prior to the arrival of the OSS investigators.
10. Even though debris from the homeless was found in the area, it could not be determined whether it played a role in the origin of the fire.
11. The current inspection and maintenance procedures for transposition cables were found to be adequate.
12. There was a lack of coordination between the Train Operator and the C/R with respect to the movement of passengers and other emergency actions.
13. Passengers appeared to have been exposed to major amount of smoke primarily after their movement between cars was commenced.
14. Communications during emergencies are limited, because when the T/O must leave his operating position he loses the ability to communicate via radio with the RTO C/C. During emergencies or in times of mechanical difficulties with the car equipment, the C/R is more likely than the T/O to remain in close proximity to a train cab.
15. The Console Train Dispatcher did not respond to transmissions (initial reports of the fire condition) that were recorded at the C/C.

B. Conclusions (Cont'd)

16. Communications between the Command Center and the T/O were inadequate in that the T/O did not provide, and the Command Center did not ask for, sufficient information to develop a clear understanding of the smoke conditions being experienced by the 8:42 A.M. #3 NLT.
17. The C/T/D did not gain a clear perspective of the locations of the trains in the incident area and the locations and intensity of the smoke condition.
18. There was inadequate separation of duties and responsibilities between the Console Train Dispatcher and the Desk Superintendent, which resulted in confusion with respect to train locations, and inadequate feedback of information to emergency response agencies (TAPD EMRU/ NYPD/FDNY, etc.) that impacted their response efforts.
19. The Desk Superintendent and Console Train Dispatcher failed to use all available assets (e.g. model boards in towers) to locate trains in the vicinity of the smoke/fire, as per paragraphs "A" and "E", Command Center Directive #28-90 (Appendix F), which resulted in significant delays in locating trains, adversely affected communications, and impacted on the ability of these persons to provide ongoing information updates to outside emergency response agencies.
20. Command Center personnel fixed their attention on the trains located in the Clark Street underriver tube rather than on the train that was closest to and most heavily involved in the smoke condition.
21. Radio discipline (Code 12-1, Emergency - Clear the Air) was not adequately maintained during the Clark Street incident.
22. Command Center Directive #9-90, REPORTS OF FIRE/SMOKE - COORDINATION WITH FIRE DEPARTMENT, dated January 24, 1990, is not in conformance with Section 15.0, FAN CONTROL IN UNDERRIVER TUNNELS, System Safety Policy/Instruction 02.001.0, Procedures for Response to Rapid Transit Emergencies (with change 1) dated August 20, 1990.
23. Two of five emergency communication lines between the TA (Transit Police and RTO C/C) and EMS were out of service. Calls placed to EMS utilizing the remaining three lines were not answered.
24. Effective communications were not established between the TA and the fire department. RTO did not comply with Paragraph 4, Fire Command Post, Command Center Directive #9-90 (Appendix G), dated January 24, 1990. The instructions contained in command center directives (e.g. from operations, coordination with FDNY, etc.) are not consistent from directive to directive, and in some cases, are not in conformance with Policy/Instruction 02.001.0
25. The RTO Command Post was not established in a timely manner.
26. The FDNY was not informed of all train locations in the incident area.

B. Conclusions (Cont'd)

27. Since C/Rs are neither trained nor qualified to operate a train, the Train Operator of the 8:42 A.M. #3 NLT had to traverse the entire length of the crowded 10-car train (approximately 900 passengers) before he could move it, thereby delaying the removal of the train from the incident area.
28. The C/R on the 8:42 A.M NLT did not carry out the provisions of NYCTA Rule 107, C/Rs Assigned to Train Service, in that the C/R did not "have charge of (the) train(s)". T/O was not operating under "orders of the C/R" per Rule 106(c). There appears to be an inconsistency with respect to actual practice vs. requirement of the rule.
29. The passenger car equipment of the 8:42 A.M. #3 NLT had common trainline circuits for public address (PA) and Heating, Ventilation and Air Conditioning (HVAC) systems. The common trainline circuits for PA/HVAC systems prevented the crew of the train from using the PA system to communicate with passengers without activating the air conditioning system.
30. The Command Center did not follow Command Center directive #32-90, Wrong Rail Moves, with respect to the 8:42 A.M. NLT.
31. The choice of wrong railing the trains out of the tunnel was appropriate, given the alternative means of removing passengers from the smoke. In order to carry out this choice, it was necessary to delay the removal of power. Based upon the testimony given to the Board, it is not considered likely that this delay contributed to the production of substantial additional smoke (i.e. most smoke was probably produced in the first few minutes after the explosion). It is, however, the opinion of the Board, that the removal of passengers could have been accomplished faster if:
 - o The Command Center had utilized Nevins Tower to help locate trains;
 - o The clearing of 306 ball (the interlocking signal at Wall Street) had not been delayed by confusion of the part of the Tower Operator at Nevins Street; and
 - o The 8:42 A.M. #3 NLT T/O had been given clear instructions by the Command Center that his train was going to be wrong railed back to Borough Hall; and he had been instructed to move to the other end of his train as quickly as possible.
32. Delays in the fan replacement program were due to a combination of design inadequacies, manufacturing problems and contractual issues.
33. The Furman Street fans, had they been in service, could have had an adverse effect on trains north and south of Clark Street due to the relative positions of the fan plant and the trains in the incident area.
34. The operation of the Old Slip fans in the exhaust mode drew smoke into the tube between the Clark and Wall Street Stations.

35. The best possible use of the fans under the existing circumstances would have been not to use them at all.

C. Recommendations

The Board recommends that Track and Structures Division

1. Treat blast areas as wet locations for the purpose of determining the need for or type of transposition cable Listing.
2. Install temporary wiring in conformance with established standards.
3. Review the location of power cable connections to contact rails to avoid structural alterations. In the event that such alterations are unavoidable, safeguards in addition to cable insulation shall be provided to prevent the possibility of electrical grounding.
4. Develop a power cable angle connector to minimize the need for structural alterations in tight areas adjacent to third rail transportation cables.

The Board recommends that Rapid Transit Operations Division

1. Ensure that fan operation is in accordance with Section 15.1.5 of NYCTA P/I 02.001.0.
2. Conduct tests to determine the rate at which smoke infiltrates subway cars during a fire, when doors and windows are closed, and with and without the operation of the HVAC system.
3. Issue guidance for the RTO Command Center and T/Os with respect to the movement of passengers between cars during fire/smoke situations.
4. Provide T/Os with portable radios similar to those being presently carried by C/Rs. C/Rs should be provided with the radios requiring insertion into brackets presently carried by Train Operators.
5. Provide and document training with respect for both types of radios, to C/Rs and Train Operators.
6. Investigate the feasibility of providing portable radios to both T/O's and C/Rs.
7. Provide training and refresher training to T/Os and C/Rs that emphasizes teamwork in the event of emergencies.
8. Reevaluate the CTDs involved performance and provide retraining as required.
9. Ensure that adequate console coverage is provided at all times.
10. All emergency telephone lines be checked at the change of each shift and the results of these checks be recorded.

The Board recommends that Rapid Transit Operations (Cont'd

11. Establish procedures to require that all inoperative lines be reported to the Division of Electrical Systems for repair and that all Command Center TAPD personnel be immediately advised of the line's status and available alternatives.
12. Develop a checklist to be used by Command Center personnel as a guide in acquiring detailed information upon which to make decisions.
13. Review RTO Command Center training programs to ensure that they stress determining the problem is before decisions are made with respect to the disposition of trains in an incident area.
14. Ensure that the provisions of paragraphs "A" and "E" of Command Center Directive #28-90, OPERATION PROCEDURE FOR FAN CONTROL IN UNDER RIVER TUNNELS, dated January 24, 1990 be expanded to include all smoke and fire incidents occurring in tubes and tunnels.
15. Combine Command Center Directives #9-90 and #28-90 and ensure that the provisions of P/I 02.001.00 are adhered to.
16. Take immediate steps to instruct all personnel to adhere to the 12-1 code and that all supervisors should take immediate corrective action when violations of the code are noted.
17. Review the operating relationship between conductors and train operators to clarify the question of "who's in charge".
18. Review Command Center procedures to determine if adequate separation of duties and responsibilities between the Console Train Dispatcher and the Desk Superintendent exist, and if not, that they be formalized.
19. Expand the provisions of paragraph A, Command Center Directive #28-90 dated January 24, 1990 to include all smoke and fire incidents occurring in tubes and tunnels.
20. Develop in conjunction with System Safety, a procedure to be used to determine when a Command Post should be established. The procedure should ensure that in those cases where a command post is required, an RTO supervisor, equipped with a cellular telephone and a radio is sent to the scene and remains there until the establishment of the command post.
21. Provide the Fire Department with periodic updates of the locations of all trains in an incident area.
22. Review all Command Center directives to ensure the uniformity of information being provided, and conformance with Policy/Instruction 02.001.0.
23. Command Center adhere to Command Center Directive #32-90.